

A New Subspecies of Scallop from Byron Bay, New South Wales

By C. A. FLEMING, New Zealand Geological Survey.

The inequivalve scallops that inhabit the shores of Australia and New Zealand have long been known from paleontological evidence to be comparative newcomers (Tate, 1887). They are members of two Mediterranean Tertiary groups which spread across the Indian Ocean probably in the early Pleistocene, to colonize southern waters that had previously lacked scallops of this type (Fleming, 1951). They left only fragmentary evidence of their migration paths.

The group of *Pecten benedictus* Lk. (a Mediterranean fossil), contains the Red Sea *erythraeensis* Sow., the Australian *fumatus* Rve. and *albus* Tate, and the New Zealand fossil *marwicki* (Fin.). The other group of scallops that came to Australasia consists of relatives of *Pecten jacobaeus*, the St. James' scallop of the Mediterranean. Colonising stocks of this group gave rise to the Tasmanian *meridionalis* Tate, to the New Zealand fossil *toi* Flem. and a succession of later forms leading to the living *novaezelandiae* Rve. Evolution in isolation together with some hybridisation due to changes of distribution controlled by Pleistocene climatic changes (see, e.g., Hodge Smith and Iredale, 1924) led to the present distribution of the half dozen Australian and New Zealand forms that have been distinguished taxonomically.

Judged by the characters of the New Zealand fossil *Pecten toi* (Fleming, 1951, figs. 2, 5), the early Australasian population of the *Pecten jacobaeus* group resembled the parent Mediterranean form very closely. Living scallops from Byron Bay, New South Wales, described below are so similar to *Pecten jacobaeus* that they may be ranked as a subspecies of the Mediterranean shell.

Wide-ranging species, consisting of subspecies thousands of miles apart, are rare among shallow-water animals of south temperate seas. They have been recognised among tropical mollusca (Schilder, 1938) and echinoids (Mayr, 1954) and probably occur in other groups with long lived pelagic larvae.

Genus *Pecten* Muller 1776.

Pecten maximus (L.), type species of *Pecten*, is so closely related to *P. jacobaeus* and derivative forms that use of Finlay's genus *Notovola* for the Australasian scallops can no longer be justified.

Pecten jacobaeus byronensis subsp. nov. Fig. 1.

Right valve similar in all essential characters to *P. j. jacobaeus*, differing in its smaller size, weak pigmentation, slightly higher shell and narrower angle between dorsal valve-margins. Ribs 19 (including lesser ones on the flanks), square-cut, high, separated by flat-bottomed interspaces a little more than half their width, each bearing 2 to 4 spaced secondary threads, beginning about 15 mm. from beaks. Concentric sculpture of prominent lamellae, conspicuous in intercostal spaces but also extending across the secondary interspaces and threads of the main ribs. Ears relatively large, bearing fine radiating threadlets, crossed by incremental lamellae. Left valve not seen.

Length 35 mm.; height 33 mm. (holotype).

Locality:—Byron Bay, New South Wales.

Holotype and two paratypes in the Australian Museum, Sydney (C. 5243), collected and presented by C. Hedley.

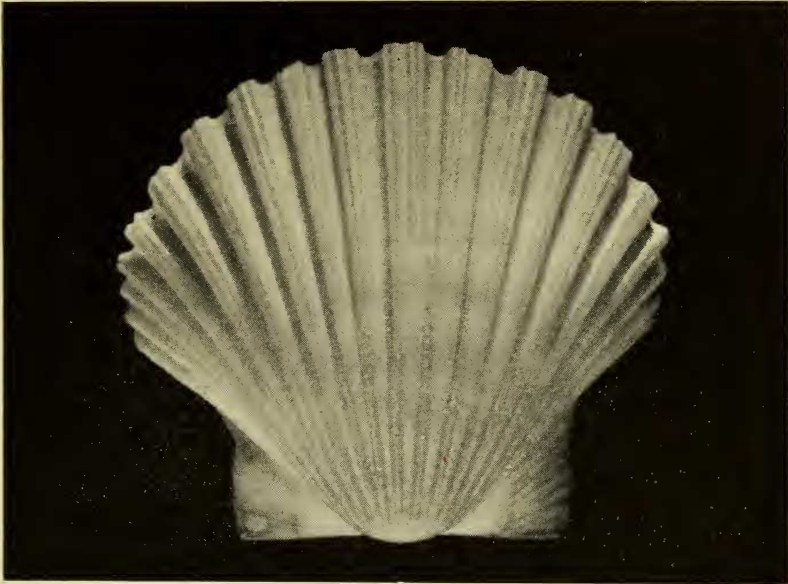


Fig. 1. *Pecten jacobaeus byronensis* Fleming. Holotype, Byron Bay, N.S.W. (Aust. Mus. C5243). X2.

Judged by its rarity in collections, this form is restricted in distribution. It is probably a relict population surviving from a period before *Pecten fumatus* colonised New South Wales. Its presence may help to explain the variation in New South Wales scallops generally classed as *fumatus*. Typical *fumatus* (like Reeve's types, with high beaks, rounded ribs, and no intercostal lamellae) is rather rare, occurring at Port Jackson and Jervis Bay (Thetis Station 54). Many other east Australian samples have squarish ribs and intercostal lamellae, at least on the flanks, characters that may be due to past or present gene flow from *byronensis* into the nearby population of *fumatus*.

ACKNOWLEDGMENT.

I am grateful to Miss Joyce Allan for facilities to examine collections in 1952 and to Dr. A. B. Walkom and Mr. D. F. McMichael for lending the type specimens for description.

REFERENCES.

- Fleming, C. A. (1951).—*J. de Conch.*, XC: 276-82.
 Hodge Smith, T., and Iredale, T. (1924).—*J. Proc. Roy. Soc. N.S.W.*, LVIII: 157-68.
 Mayr, E. (1954).—Geographic Speciation in Tropical Echinoids. *Evolution*, VIII (1): 1-18.
 Schilder, F. A. and M. (1938).—*Proc. Malac. Soc. Lond.*, XXIII (3): 119-80.
 Tate, R. (1887).—*Proc. Roy. Soc. Tasmania*, 1886; 113-6.